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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/922,363	08/02/2001	Christopher J. Manning	CM 080201	7779

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EXAMINER	
CONNOLLY, PATRICK J	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/922,363	MANNING, CHRISTOPHER J.	
	Examiner	Art Unit	
	Patrick J Connolly	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 8-17* is/are pending in the application.

4a) Of the above claim(s) *2,3,7-10,16 and 17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-6 and 11-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Christopher Manning on April 7th, 2004.

The application has been amended as follows:

Cancel claim 7.

DETAILED ACTION

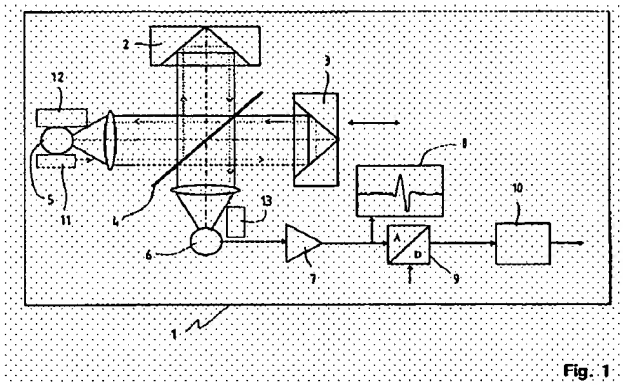
Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4-6 and 11-15 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,923,422 to Keens et al (hereafter Keens) and further in view of U.S. Patent No. 4,984,898 to Hoefler et al (hereafter Hoefler) and U.S. Patent No. 3,970,389 to Mendrin et al (herafter Mendrin).

As to claim 1, Keens teaches a spectrometer including (see Figure 1 below):



a source of a primary beam of energy (5);

a beamsplitter (4);

a reference laser coupled to the spectrometer;

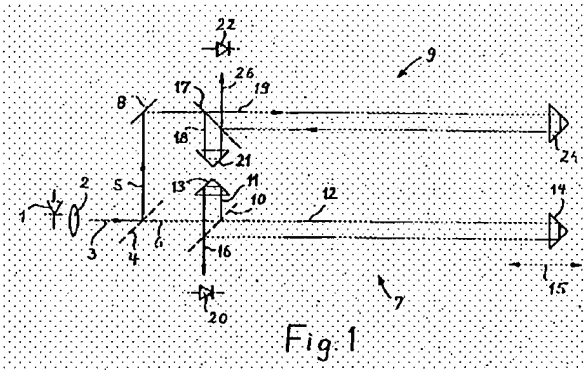
a return reflector (2);

a radiant energy detector (6); and

a control, data acquisition and processing electronic system (7-10).

Keens does not teach a tunable solid-state reference laser source coupled to the spectrometer through a filter.

Hoefler teaches an interferometer for distance measurements including (see Figure 1 below):



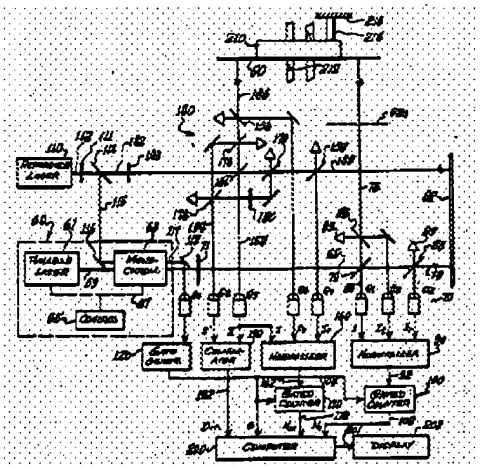
a tunable semiconductor laser source (1).

Hoefler teaches the advantages of using a semiconductor laser source including the source's compactness (see column 1, lines 50-55).

It would have been obvious to one of ordinary skill in the art at the time of invention to use the semiconductor laser source of Hoefler in combination with the spectrometer of Keens so as to achieve the advantage of compactness.

Hoefler does not teach a filter in combination with the tunable source.

Mendrin teaches a variable frequency interferometer for distance measurements including (see Figure 6 below):



a tunable laser source (61); and

a monochromator filter in the form of a Fabry-Perot etalon (63, see also column 9, lines 5-30).

Mendrin teaches the advantage of using a filter in combination with the tunable source in order to select from the emission band of the tunable source and provide a substantially coherent beam of sufficient coherence length to produce effective interference patterns over the required optical path lengths.

It would have been obvious to one of ordinary skill in the art at the time of invention to use the filter of Mendrin in combination with the reference semiconductor source of Hoefler and the spectrometer of Keens so as to achieve the advantages stated above.

As to claim 4, Mendrin teaches an etalon.

As to claim 5, VCSEL lasers are well known types of semiconductor lasers. It would have been obvious to one of ordinary skill in the art at the time of invention to use such a solid-state laser in the apparatus of Mendrin or Hoefler so as to achieve its well-known advantage of compactness.

As to claim 6, while neither Mendrin nor Hoefler teach a specific linewidth for the tunable source, it would have been obvious to one of ordinary skill in the art at the time of invention to choose an appropriate linewidth for the reference laser, including one within one wavelength, so as to provide for an highly accurate mirror position measurement.

As to claim 11, Mendrin, Heofler and Keens all teach signal demodulation for determining distance measurements.

As to claims 12, 13, and 15 Keens teaches transfer functions for the detector, adaptive filters and an additional source of radiant energy (see above, Figure 1, element 5). Keens also teaches accounting for non-linear responses (see columns 6, 7 and 8).

As to claim 14, Keens teaches detecting an optically subtracted beam (see columns 6, 7 and 8).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J Connolly whose telephone number is 571.272.2412. The examiner can normally be reached on 9:00 am - 7:00 pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571.272.2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

pjc PJC
4.22.06

Samuel A. Turner
Primary Examiner